Bad River Band of Lake Superior Chippewa's Proposed Wastewater Treatment Plant Expansion Nondegradation Review

Summary and Findings:

The Bad River Band of Lake Superior Chippewa (Band) has applied for a National Pollutant Discharge Elimination System (NPDES) permit for a proposed wastewater treatment plant expansion with a change in discharge location. The facility and discharge will be located within the exterior boundaries of the Bad River Indian Reservation. The average design flow is 140,000 gallons per day. The facility is intended to serve all residents of the New Odanah Community and Frank's Field. This includes the Band's Casino and other commercial establishments. The treatment plants proposed discharge will be to the Bad River.

Pursuant to 40 Code of Federal Regulations (CFR) Part 131, EPA reviewed the information provided by the applicant to determine whether or not the new discharge is necessary to protect public health and the environment. Based on the information provided by the applicant EPA finds the following:

1. The proposed expansion is necessary to provide effective treatment and allow for future growth. Based on the data provided, there are no ways that the discharge can be avoided through the use of pollution prevention techniques and there are also no alternative or enhanced treatment options available to the applicant at a reasonable cost that would eliminate the need for the increased discharge or reduce its impacts.

2. The proposed expansion will help rectify existing impacts to Denomie Creek and possible impacts to Honest John Slough and Bad River Slough caused by inadequate treatment at the existing plant. The new discharge to the Bad River will help protect the cultural resources afforded by the Sloughs significant to the Band as the discharge would no longer flow through the Sloughs.

Given the above findings, EPA concludes that the requirements of 40 CFR 131.12 are satisfied and that it is recommended that a new NPDES permit to discharge to the Bad River be issued to the applicant.

Antidegradation Demonstration:

I. Characteristics of the Receiving Water

The treated effluent would discharge into the Bad River, just downstream of Highway 2. The estimated average streamflow of the Bad River at this location is 2,250 cfs. By Tribal resolution, all surface waters of the Reservation are considered culturally important for the ecosystems they support. Designated uses for all waters on the Reservation include Fish and Aquatic Life, Wildlife, Recreation, Navigation, and Commercial. The Band's standards have not been

approved by EPA, however they were considered in preparing this antidegradation review and in establishing the permit limits for the proposed facility. The Bad River is one of two rivers in the United States that support a viable population of Lake Sturgeon.

II. Impact of the Discharge on the Quality of the Receiving Water

Existing water quality of the Bad River indicates that it is a high quality water resource. The new discharge will be comprised entirely of treated domestic waste water. The available data on the existing discharge to Denomie Creek do not indicate the presence of BCCs in the discharge. There are also no industrial users that would be expected to contribute BCCs to the influent. Given the nature of the discharge, some increases in BOD, phosphate, and suspended solid concentrations may occur at the end of the discharge pipe. However, the large water volume, mixing, and the discharge of effectively treated effluent to the Bad River is not expected to significantly impact the quality of the river or downstream resources. Also, given the ratio of effluent flow to stream flow, the new discharge site is less likely to affect the receiving water than was the case in the previous discharge site. Compliance with the proposed NPDES discharge permit limits will result in a discharge that meets or exceeds applicable water quality criteria needed to protect existing and designated uses.

III. Demonstration of Important Social and Economic Development

A. Current Wastewater Treatment Options are Inadequate

The existing wastewater treatment plant has reached its design capacity and treatment capability. Additional influent inputs will overload the system and further reduce proper treatment of the effluent thereby causing exceedances of discharge limits, degrading water quality in Denomie Creek and possibly further downstream. The existing treatment facility and location would preclude planned development by the Band. Additionally, the expansion of the existing treatment plant is necessary to avoid having to construct on-site sewage systems to treat residential wastewater at locations where soils are not conducive for these types of systems.

B. Current Wastewater Treatment System may be Adversely Impacting the Environment

Denomie Creek is the primary receiving water for the existing treatment plant discharge. The Bad River Slough, Honest John Slough, and Lake superior are end point receiving waters of Denomie Creek. Sampling by the Bad River Natural Resources Department conducted water quality sampling in 1997-1999 at four locations along Denomie Creek. The samples collected below the existing discharge, both immediately and further downstream, exhibit lower concentrations of dissolved oxygen (DO) than the samples collected upstream. Low levels of DO, less than the five parts per million (ppm) necessary to ensure active and healthy aquatic life, were found at three of the sampling locations. DO readings at both the sampling locations downstream of the discharge often dropped below 2.0 mg/L while background wetland DO

readings maintained a DO of 5.0 mg/L or greater. These levels, generally occurring during the warm weather months between July and September, indicate a potential detrimental affect on the creek and its inhabitants.

IV. Necessity of a New Discharge

A. Pollution Prevention

The Band routinely requires new construction on the reservation to use low flow devices. Additionally, the Band is conducting a collection system survey to determine where the system may have excessive infiltration or inflow (I/I). Corrections will be made to limit I/I. The Band has also proposed installation of grease traps at food preparation facilities to reduce grease loading to the plant. This will aid the proper operation of the plant.

B. Alternative or Enhanced Treatment Options

Options explored included no expansion, equalization/holding tanks, and additional SBR units.

The 1998 feasability study prepared by the Indian Health Service identified the construction of additional SBR units as the most feasible alternative as to cost and satisfying the Band's need for additional treatment capacity. The May 2000 Environmental Assessment prepared by Short Elliott Hendrickson Inc. looked at alternative discharge locations. Discharge to the Bad River was determined to be the most environmentally friendly.

V. Proposed Effluent Limitations for the New WWTF

The proposed effluent limitations for the continuous discharge are:

Effluent Parameter	30 Day Average During Discharge			7 Day Average During Discharge	
	kg/d	mg/L	Percent Removal*	kg/d	mg/L
Biochemical Oxygen Demand (CBOD5)	35	30	85	53	45
Total Suspended Solids (TSS)	35	30	85	53	45
Total Phosphorus (as P)	1.2	1.0			
E. coli	126 E. coli/100ml (geometric mean)				

The pH shall not be less than 6.0 nor greater than 9.0
There shall be no discharge of floating solids or visible foam in other than trace amounts.
The discharge shall not contain oil or other substances in amounts sufficient to create a visible sheen on the surface of the receiving waters.

NOTE: lbs/d = pounds per day
mg/L = milligrams per liter

* For the average during the discharge period, the effluent concentration for CBOD5 and TSS shall not exceed 15% of the arithmetic mean of the value for influent samples for CBOD5 and TSS collected during the related treatment period.

VI. Cumulative Impacts

There are no known discharges that would have any cumulative impacts other than non-point sources to the receiving water.

VII. Conclusion and Recommendation

The proposed expansion of the wastewater treatment plant is expected to have a beneficial environmental impact on the residents and businesses of the Band.

As stated above, it is not expected that there will be any water quality impacts to the Bad River and it would eliminate impacts to Denomie Creek.

Based on the information, no additional treatment is recommended. Therefore, the limits included above should be included in the draft NPDES permit to be public noticed.

VIII. References

The information used in this review can be found in the administrative record for the draft permit and in particular include the 1998 feasability study prepared by IHS, the May 2000 Environmental Assessment prepared by SEH for the wastewater treatment plant expansion, and the November 2000 environmental report prepared by Earth Tech, Inc. for the wastewater treatment plant expansion proposed force main and lift station.